

Math 307 Homework
April 17, 2015

1. Use formula (4.2) to find a formula for

$$\det \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix}.$$

2. Prove that if A is upper triangular, $\det(A) = \prod_{j=1}^n a_{jj}$.
3. Suppose that $\dim V = n$ and $\mathbf{T} \in \mathcal{L}(V)$ has n distinct eigenvalues $\lambda_1, \dots, \lambda_n$.
Prove that

$$\det \mathbf{T} = \lambda_1 \dots \lambda_n.$$